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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,117	05/16/2005	Hartmut Richter	PD020107	3618

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EXAMINER	
SHEN, KEZHEN	

ART UNIT	PAPER NUMBER
2627	

MAIL DATE	DELIVERY MODE
12/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/535,117	RICHTER ET AL.	
	Examiner	Art Unit	
	Kezhen Shen	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 18-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 18-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination 37 CFR 1.114

A Request for Continued Examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/3/2009 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-13 and 18-23 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claim 1, applicant has amended the claims to further contain the limitation of "alternately placing one of the pits with a first predetermined length and one of the lands with a second predetermined length adjacent to a position of one of the bit cell signal transitions." to overcome examiner's rejection. Examiner agrees Rijnsburger fails to teach this specific limitation, however in light of a new search has found Kajiyama et al. which reads on the specific limitation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1-13 and 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horimai et al. 5,513,161 and further in view of Rijnsburger 4,907,216 and Kajiyama et al. 6,108,296.

Regarding claim 1, Horimai et al. teaches an optical recording medium using pits and lands (Fig. 4, Col 6 Lines 3-25), whereby the pits and lands are placed out of the center of a track of the prerecorded area (Fig. 4). Horimai et al. fails to teach a method for encoding by bit cell signal transitions of the pits and lands from one side of the track center to another side of the track center and storing data as bit cells in a prerecorded area of an optical recording medium using pits and lands and alternately placing one of the pits with a first predetermined length and one of the lands with a second predetermined length adjacent to a position of one of the bit cell signal transitions.

However, Rijnsburger teaches a method of bit cell modulation wherein data is encoded based on the transitions of the track groove and the transitions are set in a predefined manner (Fig. 3c, Col 4 Lines 29-51) and the bit cell signal transitions are spaced in a predetermined length (L of Fig. 3c, Col 4 Lines 38-51, Fig. 9, Col 8 Lines 10-19 spacing between the zero crossings of the position-information are equal to a predetermined time interval). Therefore, it would have been obvious to one of ordinary skill in the arts to combine the teachings of the optical recording medium as taught by Horimai et al. and the teachings of the bit cell modulation where in transitions are in a predefined manner as taught by Rijnsburger as a whole to use pits and lands for storing

addition information and arranging the pits and lands transitions for bit cell signal transitions in a predefined manner for the benefit of encoding additional data along with the pits and lands.

However, Kajiyama et al. teach a method of providing micro pits and lands on the optical disc with predetermined lengths (Col 1 Lines 45-65). Therefore, it would have been obvious to one of ordinary skill in the arts to combine the teachings of the optical recording medium as taught by Horimai et al. and Rijnsburger and the teachings of placing the pits and lands with a first and second predetermined length adjacent to a position of one of the bit cell signal transitions as taught by Kajiyama et al. as a whole to use pits and lands for storing addition information and arranging the pits and lands transitions for bit cell signal transitions in a predefined manner for the benefit of preventing illegal copying of the optical disc (Kajiyama et al. Col 1 Line 65 - Col 2 Line 18).

Regarding claim 2, Horimai et al. teaches the method according to claim 1, wherein the pits and lands are arranged in a fixed recurring sequence of pit lengths and land lengths (Fig. 13, Col 15 Lines 1-7). Horimai et al. fail to teach at the bit cell signal transitions in the pit lengths and land lengths.

However, Rijnsburger teaches the method of bit cell modulation wherein the transitions are set in a predefined manner (Fig. 3c, Col 4 Lines 29-51). Therefore, it would have been obvious to one of ordinary skill in the arts to combine the teachings of the optical recording medium as taught by Horimai et al. and the teachings of the bit cell

modulation where in transitions are in a predefined manner as taught by Rijnsburger as a whole to use pits and lands for transitions for bit cell signal transitions in a predefined manner for the benefit of encoding additional data along with the pits and lands.

Regarding claim 3, the limitation has been analyzed and rejected with respect to the reasons set forth above in claim 1. Further, the pits are arranged like the bit cells and the transition will be read as such.

Regarding claim 4, the limitation has been analyzed and rejected with respect to the reasons set forth above in claim 1. Further, the lands are arranged like the bit cells and the transition will be read as such.

Regarding claim 5, Horimai et al. teach the method according claim 1, further comprising the step of placing an identical number of pits and lands in each bit cell (Fig. 13, Col 15 Lines 1-7 Fig. 13 the servo pits and the areas without the servo pits).

Regarding claim 6, Horimai et al. teach the method according to claim 1, further comprising the step of setting the lengths of the pits and lands to integer multiples of a predefined length based on a nominal channel clock and a nominal rotational speed of the optical recording medium (Fig. 4, Col 6 Lines 3 – 65 Tables 1 and 2, Col 11 Lines 21-48 the pits and lands are set a specific lengths and the recording of these pits and lands are based on the clock and rotational speed by the clock generator circuit and the FG pulse generator).

Regarding claim 7, Horimai et al. teach the method according to claim 1, further comprising the step of inserting a gap at the bit cell signal transitions (Fig. 13, Col 15

Lines 1-19 as seen in Fig. 13 there is a gap between positions A, B and C before a land or pit is present).

Regarding claim 8 Horimai et al. teach the method according to claim 1, further comprising a step of arranging pits, which are long compared with a diameter of a readout spot (Fig. 4, the pit on tracks #2 and #3 are longer than the readout spot), near the bit cell signal transitions (Fig. 4, Col 6 Lines 3 – 65 Tables 1 and 2 the transitions are between the lands and pits which represent 0 and 1 in the recording data).

Regarding claim 9, Horimai et al. teach the method according to claim 8, further comprising a step of arranging lands, which are short compared with the diameter of a readout spot (Fig. 4 and Fig. 13 the areas where a pit is not present is regarded as a land is shorter or longer than the diameter depending on the area of the track read), distanced from the bit cell signal transitions (Fig. 4, Col 6 Lines 3 – 65 Tables 1 and 2 the transitions are between the lands and pits which represent 0 and 1 in the recording data)..

Regarding claim 10, Horimai et al. teach the method according to claim 8, further comprising a step of arranging lands, which are short compared with the diameter of the readout spot (Fig. 4 and Fig. 13 the areas where a pit is not present is regarded as a land is shorter or longer than the diameter depending on the area of the track read), distanced from the bit cell signal transitions (Fig. 4, Col 6 Lines 3 – 65 Tables 1 and 2 the transitions are between the lands and pits which represent 0 and 1 in the recording data).

Regarding claim 11, Horimai et al. teach the method according to claim 10, further comprising a step of arranging pits (Fig. 4, the pit on tracks #1 are shorter than the readout spot), which are short compared with the diameter of a readout spot, distanced from the bit cell signal transitions (Fig. 4, Col 6 Lines 3 – 65 Tables 1 and 2 the transitions are between the lands and pits which represent 0 and 1 in the recording data).

Regarding claim 12, Horimai et al. teach the method according to claim 10, further comprising a step of arranging pits with a length corresponding to the full width at half maximum of the intensity distribution of the readout spot near the bit cell signal transitions (Col 15 Lines 13-19).

Regarding claim 13, Horimai et al. teach the method according to claim 12, further comprising a step arranging pits, which are short compared with the diameter of a readout spot distanced from the bit cell signal transitions (Fig. 4, the pit on tracks #1 are shorter than the readout spot).

Regarding claim 18, Horimai et al. teach method according to claim 1, further comprising a step of varying a distance between the track center and the pits and lands (Col 6 Lines 14-21 the track pitch is dependent on the spot size and the pit diameter which can be varied).

Regarding claim 19, Horimai et al. teach the method according to claim 1, further comprising a step of varying a width of the pits (Col 6 Lines 14-21 varying a pit between 0.5 μm to 0.86 μm).

Regarding claim 20, Horimai et al. fail to teach the method according to claim 1, wherein the average of a modulation signal containing the stored data is zero for bit cells representing a digital `1` and zero for two consecutive bit cells representing a digital `0`.

However, Rijnsburger teaches a method of bit cell modulation wherein a logic "1" or "0" is read depending on when the transition occurs (Fig. 3c, Col 4 Lines 29-51). Therefore, it would have been obvious to one of ordinary skill in the arts to combine the teachings of the optical recording medium as taught by Horimai et al. and the teachings of the bit cell modulation where in transitions are in a predefined manner as taught by Rijnsburger as a whole to read out a logic "1" or "0" depending on the transition occurrence for the benefit of encoding additional data along with the pits and lands.

Regarding claim 21, the limitations have been analyzed and rejected with respect to the method of storing data on the pits and lands as set forth above in claim 1.

Regarding claim 22, the limitations have been analyzed and rejected with respect to the method of storing data on the pits and lands as set forth above in claim 1.

Regarding claim 23, the limitations have been analyzed and rejected with respect to the method of storing data on the pits and lands as set forth above in claim 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kezhen Shen whose telephone number is (571) 270-1815. The examiner can normally be reached on Monday-Friday 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kezhen Shen/
Examiner, Art Unit 2627

/Joseph H. Feild/
Supervisory Patent Examiner, Art Unit 2627